Optics and Spectroscopy (English translation of Optika i Spektroskopiya) 2014 vol.116 N5, pages 739-742

Photoconductivity and photodielectric effect in LiY1 - X Lu x F4 crystals doped with Ce3+ and Yb 3+ ions

Pavlov V., Semashko V., Rakhmatullin R., Korableva S.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Time and spectral dependences of the dielectric permittivity of the LiY1 - x Lu x F4 (x = 0, 0.5, and 1) crystals doped with Ce3+ and co-doped with Yb3+ ions under UV laser excitation were studied by the 8-mm microwave resonant technique at room temperature. The obtained photoconductivity spectrum in 240-310 nm spectral range was interpreted as a stepwise photoionization spectrum of the Ce 3+ ions due to sequential 4f-5d and 5d-6s transitions. Average lifetimes of free and defect trapped (color centers) charge carriers were estimated. © 2014 Pleiades Publishing, Ltd.

http://dx.doi.org/10.1134/S0030400X14050178